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Acute Coronary Syndromes

ASSOCIATION OF VITAMIN D AND PARATHYROID HORMONE WITH INFARCTION-RELATED ARRHYTHMIA IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

Poster Contributions
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Background: Infarction-related arrhythmia is major complication of acute myocardial infarction (AMI). Vitamin D deficiency and high parathyroid hormone (PTH) have been reported to be related to various cardiovascular diseases. This study investigated the association of vitamin D and PTH with infarction-related arrhythmia in patients with AMI.

Methods: We prospectively analyzed clinical data from all consecutive AMI patients. Infarction-related arrhythmia was defined as arrhythmias documented in in-hospital continuous EKG monitoring for at least 48 hours after development of AMI. Vitamin D deficiency and high PTH was defined as 25(OH)D <20 ng/mL and PTH >65 pg/mL, respectively.

Results: A total of 192 patients [142 men (74%), mean age 66 ± 14 years] were included in this study. Overall 142 infarction-related arrhythmias, including 12 ventricular fibrillations, 81 ventricular tachycardias (21 sustained, 60 non-sustained), 33 atrial fibrillations, and 16 atrial tachycardias, were observed in 99 (52%) patients. Patients with infarction-related arrhythmia were older (68 ± 12 vs. 63 ± 14 years, p=0.010) and likely to have more ST-elevation AMI (60 vs. 34%, p=0.001), multi-vessel coronary disease (77 vs. 62%, p=0.027), cardiogenic shock (30 vs. 10%, p=0.001), and mechanical ventilation support (23 vs. 1%, p<0.001), compared with those without. Baseline renal dysfunction (41 vs. 24%, p=0.017) and Killip class ≥2 (49 vs. 23%, p<0.001) were also frequently observed in patients with infarction-related arrhythmia. Patients with infarction-related arrhythmia had lower vitamin D (13.1 ± 5.4 vs. 17.7 ± 7.2 ng/mL, p<0.001) and higher PTH level (79.5 ± 65.6 vs. 51.8 ± 38.4 pg/mL, p<0.001). In multivariate logistic analysis, vitamin D deficiency (OR 6.01, 95% CI 2.23-16.18, p<0.001), ST-elevation AMI (OR 3.01, 95% CI 1.46-6.18, p=0.003), cardiogenic shock (OR 2.85, 95% CI 1.09-7.41, p=0.032), high PTH (OR 2.09, 95% CI 1.01-4.35, p=0.048), and age (OR 1.03, 95% CI 1.00-1.06, p=0.034) were significant independent predictors of infarction-related arrhythmia.

Conclusions: Vitamin D deficiency and high PTH are the important independent predictors of infarction-related arrhythmia in patients with AMI.